UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,146	11/25/2003	Frank S. Caccavale	10830.0106NP	7027

27927 7590 12/07/2009

RICHARD AUCHTERLONIE
NOVAK DRUCE & QUIGG, LLP
1000 LOUISIANA
53RD FLOOR
HOUSTON, TX 77002

EXAMINER	
TRUONG, CAMQUY	
ART UNIT	PAPER NUMBER
2195	

MAIL DATE	DELIVERY MODE
12/07/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/722,146	CACCAVALE, FRANK S.	
	Examiner	Art Unit	
	CAMQUY TRUONG	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 September 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-36 are presented for examination.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claims 1-36 are rejected under 35 U.S.C 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. The claim language in the following claim is not clearly understood:

i. As to claim 1, lines 4-5, it is not clearly understood how the step of "applying a mapping function to the respective utilization value of each distributed processing unit to obtain a respective weight" (i.e. a table contains each processing unit corresponding with its weight).

ii. Claims 11-12, 19, 29 and 30 are rejected for the same reason as claim 1 above.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 6, 19 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Zielinski et al. (U.S. 7,487,243 B1).

4. As to claims 1 and 19, Zielinski teaches the invention as claimed including: in a data processing network including distributed processing units, a method comprising:

obtaining a respective utilization value of each distributed processing unit (calculating weightings associated with the tunnel terminations devices of the set based on resource constraints for the tunnel termination devices, col. 2, lines 10-13 / an L2TP Access Concentrator (LAC) calculate the weightings based on resource constraints associated with L2TP Network Servers (LNSs), col. 3, lines 32-39; col. 5, lines 11-18. In order to calculate the weight, the resource constraints are obtained. Thus, Zielinski inherently discloses resource constraints of each termination device is obtain (utilization value of each distributed processing unit is obtaining);

applying a mapping function to the respective utilization value of said each distributed processing unit to obtain a respective weight (calculating weightings associated with the tunnel terminations devices of the set based on resource constraints for the tunnel termination devices, for example, Weight (device A) = 500/500= 1, col. 2, lines 10-13; col. 3, lines 32-39; col. 5, lines 11-18 ; col. 6, lines 10-23); and

using the respective weights for the distributed processing units for distributing work requests to the distributed processing units so that the respective weight for said each distributed processing unit specifies a respective frequency at which the work requests are distributed to said each distributed processing unit (allocate the subscriber session to the tunnel termination devices based on the weight, col. 2, lines 3-41; col. 5, lines 8-22; col. 6, lines 57-60).

5. As to claims 6 and 24, Zielinski teaches the mapping function is selected to provide weights estimated to cause a balancing of loading upon the distributed processing unit (applies the weighted load balancing to select one of the devices , col. 2, lines 10-16; col. 6, lines 49-52).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 2-4, 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zielinski et al. (U.S. 7,487,243 B1), as applied to claims 1 and 19 above, in view of Choquier et al. (U.S. 5,774,668).

7. As to claims 2 and 20, Zielinski does not explicitly teach wherein the respective utilization value of said each distributed processing unit is a percentage of saturation of said each distributed processing unit. However, Choquier teaches wherein the respective utilization value of said each distributed processing unit is a percentage of saturation of said each distributed processing unit (percent of CPU time, col. 10, line 66 – col. 11, line 12; col. 14, line 60 – col. 15, line 6).

8. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Zielinski by incorporating the teaching of the respective utilization value of said each distributed processing unit is a percentage of saturation of said each distributed processing unit as taught by Choquier because this allow to efficient use of available processing resources.

9. As to claims 3-4 and 21-22, Choquier teaches said each distributed processing unit collects statistics for calculation of the respective utilization value of said each distributed processing unit (update the CPU load value, col. 15, lines 6- 11).

10. Claims 7-8 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zielinski et al. (U.S. 7,487,243 B1), as applied to claims 1 and 19 above, in view of Garnett et al. (U.S. 7,032,037).

11. As to claims 7 and 25, Zielinski do not explicitly teach wherein the respective weights are used for weighted round-robin load balancing of the work requests upon the distributed processing units. However, Garnett teaches wherein the respective weights are used for weighted round-robin load balancing of the work requests upon the distributed processing units (load balancing algorithm is the "weighted round robin" where the number of connections assigned per server is specified by a weight assigned to each server, col. 32, lines 13-16).

12. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Zielinski by incorporating the teaching of the respective weights are used for weighted round-robin load balancing of the work requests upon the distributed processing units as taught by Garnett in order to gain the advantage of preventing a particular application on the server is overloaded as sugguest by Garnett.

13. As to claims 8 and 26, Garnett teaches the weighted round-robin load balancing performs round-robin load balancing when the weights are equal (all the servers have the same weight, col. 32, lines 16-18).

14. Claims 9, 11, 27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zielinski et al. (U.S. 7,487,243 B1), as applied to claim 1 and 19 above, in view of Kapoor (U.S. 5,884,038).

15. As to claims 11 and 29, Zielinski teaches the invention substantially as claimed including: in a data processing network including distributed processing units, a method comprising:

obtaining a respective utilization value of each distributed processing unit (calculating weightings associated with the tunnel terminations devices of the set based on resource constraints for the tunnel termination devices, col. 2, lines 10-13 / an L2TP Access Concentrator (LAC) calculate the weightings based on resource constraints associated with L2TP Network Servers (LNSs), col. 3, lines 32-39; col. 5, lines 11-18. In order to calculate the weight, the resource constraints are obtained. Thus, Van inherently and obviously discloses resource constraints of each termination device is obtain (utilization value of each distributed processing unit is obtaining);

applying a mapping function to the respective utilization value of said each distributed processing unit to obtain a respective weight for said each distributed processing unit (calculating weightings associated with the tunnel terminations devices of the set based on resource constraints for the tunnel termination devices, col. 2, lines 10-13; col. 3, lines 32-39; col. 5, lines 11-18 ; col. 6, lines 10-23); and

using the respective weights for the distributed processing units for distributing work requests to the distributed processing units so that the respective weight for said

each distributed processing unit (allocate the subscriber session to the tunnel termination devices based on the weight, col. 2, lines 3-41; col. 5, lines 8-22; col. 6, lines 57-60).

16. Zielinski do not explicitly teach using the respective weights for the distributed processing units for producing a distribution list for distributing work requests to the distributed processing units for load balancing of the work requests upon the processing units, and repetitively randomizing the distribution list during the distribution of the work requests to the distributed processing units. However, Kapoor teaches using the respective weights for the distributed processing units for producing a distribution list (an array A of numbers with W elements is created, the first w1 elements of array A are assigned a number, which corresponds to the web server with weight w1..., col. 5, lines 48-60 / after array A has been created, col. 5, lines 60-61) for distributing work requests to the distributed processing units for load balancing of the work requests upon the processing units (provide IP addresses to client requesting an IP address base on the relative weights of each particular web server such that the workload is balanced between each of the web server, col. 5, lines 1-5) , and repetitively randomizing the distribution list during the distribution of the work requests to the distributed processing (the domain name server randomizes the list of web server, col. 5, lines 15-16).

17. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Zielinski by incorporating the teaching of

using the respective weights for the distributed processing units for producing a distribution list for distributing work requests to the distributed processing units for load balancing of the work requests upon the processing units, and repetitively randomizing the distribution list during the distribution of the work requests to the distributed processing units as taught by Kapoor because this would allow to efficiently utilize the multiple web servers of an Internet host as well as reduce the skewed locking problems such that overall Internet traffic and response times are reduced (col. 2, lines 47-52 / after array A has been created and the numbers set accordingly, the order of all of the elements and array A are randomized as shown in step 413. In one embodiment, array A is periodically recomputed as desired such that the lists of IP addresses with their relative weights remain current, col. 5, lines 60-65).

18. As to claims 9 and 27, Kapoor teaches teach the respective weights for the distributed processing units are used for distributing work requests to the distributed processing units by creating a distribution list containing entries indicating the distributed processing units (an array A of numbers with W elements is created, the first w1 elements of array A are assigned a number, which corresponds to the web server with weight w1..., col. 5, lines 48-60 / the domain name server connects to each web server and removes the down web servers from the list, col. 5, lines 42-44 / after array A has been created, col. 5, lines 60-61) the respective weight for said each distributed processing unit specifying the number of the entries indicating said each distributed processing unit (the domain name server returns the IP address of a web server such

that the total number of times that the IP address of each one of the web servers is returned in proportional to the relative weight of each web server, col. 5, lines 11-16), and by randomizing the distribution list (the domain name server randomize the list of web server, col. 5, lines 15-16 / the order of all the elements and array A are randomized, col. 5, lines 60-63), and accessing the randomized distribution list for distributing the work requests to the distributed processing units as indicated by the entries in the randomized distribution list (The domain name server returns the IP address of a web server such that the total number of times that the IP address of each one of the web servers is returned in proportional to the relative weight of each web server, col. 2, lines 55-63). In order to return the IP address of a web server to servet client, the domain name server has to access to web server lists. Thus, it would have been obvious that the Kapoor teaches accessing the randomized distribution list for distributing the work requests to the distributed processing units as indicated by the entries in the randomized distribution list).

19. Claims 12 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zielinski et al. (U.S. 7,487,243 B1) in view of Caccavale (U.S. 2002/0129277).

20. As to claim 12 and 30, Zielinski teaches the invention substantially as claimed including: in a data processing network including a network file server and a plurality of virus checking servers, a method comprising:

the network file server (L2TP Access Concentrator (LAC) obtaining a respective utilization value of each distributed processing unit (an L2TP Access Concentrator (LAC) calculate the weightings based on resource constraints associated with L2TP Network Servers (LNSs), col. 2, lines 10-13; col. 3, lines 32-39; col. 5, lines 11-18. In order to calculate the weight, the resource constraints are obtained. Thus, Zielinski inherently discloses resource constraints of each termination device is obtain (utilization value of each distributed processing unit is obtaining);

the network file server applying a mapping function to the respective utilization value of said each distributed processing unit to obtain a respective weight (calculating weightings associated with the tunnel terminations devices of the set based on resource constraints for the tunnel termination devices, col. 2, lines 10-13; col. 3, lines 32-39; col. 5, lines 11-18 ; col. 6, lines 10-23).

21. Zielinski does not explicitly teaches the network file server using the respective weights for the virus checking servers for weighted round-robin load balancing of virus checking requests from the network file server to the virus checking servers. However, Caccavale teaches using the respective weights for the servers for weighted round-robin load balancing of requests from the network file server to the servers the(RPC client selects a next one of the NT file servers in round-robin fashion in order to balance loading of file scan requests upon the NT file servers, paragraphs 12, 35 and 45).

22. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Zielinski by incorporating the teaching of the network file server using the respective weights for the virus checking servers for weighted round-robin load balancing of virus checking requests from the network file server to the virus checking servers as taught by Caccavale because this allow to balance the workload among servers; thereby, performing the scan request is highly efficient.

23. Claims 13 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zielinski et al. (U.S. 7,487,243 B1) in view of Caccavale (U.S. 2002/0129277, as applied to claims 12 and 30 above, and further in view of Choquier et al. (U.S. 5,774,668).

24. As to claims 13 and 31, Zielinski and Caccavale do not explicitly teach each distributed processing unit collects statistics for calculation of the respective utilization value of said each distributed processing unit. However, Choquier teaches said each distributed processing unit collects statistics for calculation of the respective utilization value of said each distributed processing unit (update the CPU load value, col. 15, lines 6- 11).

25. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Zielinski and Caccavale by incorporating

the teaching of each distributed processing unit collects statistics for calculation of the respective utilization value of said each distributed processing unit as taught by Choquier because this allow to efficient use of available processing resources.

26. Claims 15 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zielinski et al. (U.S. 7,487,243 B1) in view of Caccavale (U.S. 2002/0129277), as applied to claims 1 and 19 above, in view of Garnett et al. (U.S. 7,032,037).

27. As to claims 15 and 33, Zielinski and Caccavale do not explicitly teach the weighted round-robin load balancing performs round-robin load balancing when the weights are equal. However, Garnett teaches the weighted round-robin load balancing performs round-robin load balancing when the weights are equal (col. 32, lines 16-18).

28. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Zielinski and Caccavale by incorporating the teaching of weighted round-robin load balancing performs round-robin load balancing when the weights are equal as taught by Garnett in order to gain the advantage of preventing a particular application on the server is overloaded as sugguest by Garnett.

29. Claims 16 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zielinski et al. (U.S. 7,487,243 B1) in view of Caccavale (U.S. 2002/0129277),

as applied to claims 12 and 16 above, and further in view of Kapoor (U.S. 5,884,038).

30. As to claims 16 and 34, Zielinski does not explicitly teach the respective weights for the virus checking servers are used for weighted round-robin load balancing of virus checking requests from the network file server to the virus checking servers by creating a distribution list containing entries indicating the virus checking servers. However, Caccavale teaches the respective weights for the virus checking servers are used for weighted round-robin load balancing of virus checking requests from the network file server to the virus checking servers by creating a distribution list containing entries indicating the virus checking servers (paragraphs 12, 35 and 45).

31. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Zielinski by incorporating the teaching of respective weights for the virus checking servers are used for weighted round-robin load balancing of virus checking requests from the network file server to the virus checking servers by creating a distribution list containing entries indicating the virus checking servers as taught by Caccavale because this allow to balance the workload among servers; thereby, performing the scan request is highly efficient.

32. Zielinski and Caccavale do not explicitly, the respective weight for said each distributed processing unit specifying the number of the entries indicating said each

distributed processing unit, and by randomizing the distribution list, and accessing the randomized distribution list for distributing the work requests to the distributed processing units as indicated by the entries in the randomized distribution list.

33. However, Kapoor teaches the respective weight for said each distributed processing unit specifying the number of the entries indicating said each distributed processing unit (the domain name server returns the IP address of a web server such that the total number of times that the IP address of each one of the web servers is returned in proportional to the relative weight of each web server, col. 5, lines 11-16), and by randomizing the distribution list (the domain name server randomize the list of web server, col. 5, lines 15-16 / the order of all the elements and array A are randomized, col. 5, lines 60-63), and accessing the randomized distribution list for distributing the work requests to the distributed processing units as indicated by the entries in the randomized distribution list (the domain name server receives a resolution request. The domain name server returns the IP address of a web server such that the total number of times that the IP address of each one of the web servers is returned in proportional to the relative weight of each web server. In order to return the IP address of a web server to client, the domain name server has to access to web server lists. Thus, Kapoor teaches accessing the randomized distribution list for distributing the work requests to the distributed processing units as indicated by the entries in the randomized distribution list).

34. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching Zielinski and Caccavale by incorporating the teaching of the respective weight for said each distributed processing unit specifying the number of the entries indicating said each distributed processing unit, and by randomizing the distribution list, and accessing the randomized distribution list for distributing the work requests to the distributed processing units as indicated by the entries in the randomized distribution list as taught by Kapoor in order to gain the advantage of efficiently utilize the multiple web servers of an Internet host as well as reduce the skewed locking problems such that overall Internet traffic and response times are reduced (col. 2, lines 47-52).

35. **Claims 12 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable Komai (U.S. 2003/0187711 A1) in view of Caccavale (U.S. 2002/0129277).**

36. As to claims 12 and 30, Komai teaches in a data processing network including a network file server and a plurality of virus checking server, a method comprising:

the network file server (server 1) obtaining a respective utilization value of each virus checking server (each personal computer, paragraph 58) (Figs. 2-3, display the schedule of the user uses the personal computer 2; for example, the user is scheduled to prepare a document at the user's seat from 10:00 to 12:00 on 17th (Thursday). Moreover, it is known that the same user is scheduled to receive the certifying examination held at the conference hall for a period from 13:00 to 15:00 on 17th

(Thursday), paragraph 79. Thus, Komai teaches displaying (obtaining) a respective utilization value of each virus checking server);

the network file server (server 1, paragraph 72) applying a mapping function to the respective utilization value of said each server to obtain a respective weight for said each virus checking server (according to the schedule in Fig. 3, this user is scheduled to receive a certifying examination at a conference hall for 120 minutes from 13:00 to 15:00, immediately, the server 1 refers to an unoccupied time of 120 minutes, paragraphs 71-72);

37. komai does not explicitly teaches the network file server using the respective weights for the virus checking servers for weighted round-robin load balancing of virus checking requests from the network file server to the virus checking servers. However, Caccavale teaches using the respective weights for the servers for weighted round-robin load balancing of requests from the network file server to the servers the(RPC client selects a next one of the NT file servers in round-robin fashion in order to balance loading of file scan requests upon the NT file servers, paragraphs 12, 35 and 45).

38. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Komai by incorporating the teaching of the network file server using the respective weights for the virus checking servers for weighted round-robin load balancing of virus checking requests from the network file server to the virus checking servers as taught by Caccavale because this allow to

balance the workload among servers; thereby, performing the scan request is highly efficient.

Allowable Subject Matter

39. Claims 5, 10, 14, 17-18, 23, 28, 32 and 35-36 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAMQUY TRUONG whose telephone number is (571)272-3773. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng Ai An can be reached on (703)305-9678. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Meng-Ai An/
Supervisory Patent Examiner, Art Unit 2195

Camquy Truong

December 3, 2009